

**National Aeronautics and Space Administration**  
**Fleet Alternative Fuel Vehicle Program Report for Fiscal Year 2008**  
**February 15, 2009**

This National Aeronautics and Space Administration (NASA) Fleet Alternative Fuel Vehicle (AFV) Report for Fiscal Year (FY) 2008 presents the Agency's data on the number of alternative AFVs acquired in FY 2008, and the planned and projected acquisitions for FY 2009 and FY 2010. This report has been developed in accordance with the Energy Policy Act of 1992 (EPAct) (42 U.S.C. 13211-13219) as amended by the Energy Conservation Reauthorization Act of 1998 (Public Law 105-388) (ECRA), Energy Policy Act of 2005 (EPAct), and Executive Order (E.O.) 13423 (signed by the President in January 2007). NASA exceeded the 75 percent AFV acquisition requirement for 107 vehicles by acquiring 303 total credits in FY 2008. Attachment (A) provides detailed information on the number and types of light-duty vehicles leased or purchased by NASA in FY 2008.

### **Legislative Requirements**

**EPAct** requires that 75 percent of all covered light-duty vehicles acquired for Federal fleets in FY 1999 and beyond must be AFVs (where the fleets have 20 or more vehicles, are capable of being centrally fueled, and are operated in a metropolitan statistical area with a population of more than 250,000 based on the 1980 census). Certain emergency, law enforcement, and national defense vehicles are exempt from this requirement. In January 2007, President Bush signed Executive Order (E.O.) 13423 which strengthened the mandate and requires agencies with 20 or more vehicles in the United States to decrease petroleum consumption by 2% per year relative to their fiscal year (FY) 2005 baseline through FY 2015. E.O. 13423 also requires agencies to increase alternative fuel use by 10% per year relative to the previous year.

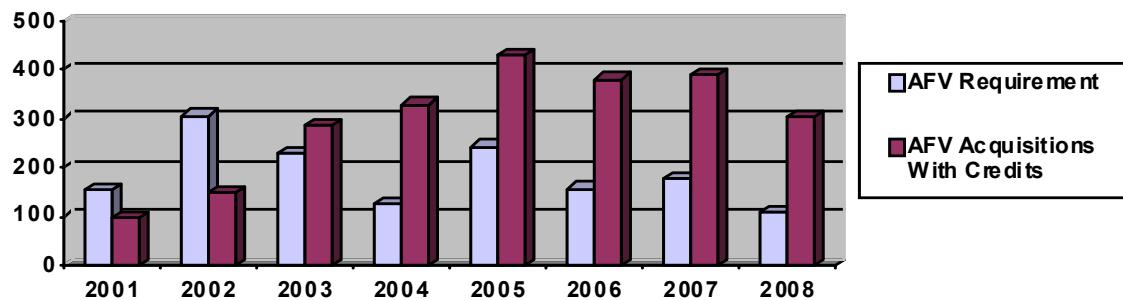
### **NASA Approach to Compliance with EPAct and E.O. 13423**

To achieve compliance with the legislative mandates of EPAct and E.O. 13423, NASA has developed an aggressive compliance strategy including the acquisition of 75 percent new, covered light-duty vehicles as AFVs, and uses alternative fuel in these vehicles a majority of the time. NASA will continue to acquire light duty vehicles with a higher fuel efficiency, and further reduce petroleum consumption by using biodiesel fuel in diesel vehicles where available.

NASA recognizes that AFV fueling infrastructure is extremely limited in most areas of the country. As such, NASA has or intends to develop AFV fueling infrastructure at those NASA Centers where it is not readily commercially available. Additionally, each NASA Center now reports on their institutional compliance with EPAct and E.O. 13423.

### NASA Fleet Compliance for FY 2007

Figure 1 is a graphical depiction of AFV acquisitions by NASA's fleet in FY 2001 through 2008. NASA acquired 284 light-duty vehicles (LDVs) during FY 2008 of which 143 were EPAct covered LDVs. Of the total 284 LDVs acquired, 261 were AFVs. NASA also gained 42 credits for biodiesel fuel use and for acquiring dedicated light, medium, and heavy-duty AFVs, for a total of 303 credits, thereby exceeding EPAct requirements of 75% by 212 percentage points.



### Summary of NASA's FY 2008 AFV Acquisitions

A number of vehicles that were leased and purchased by NASA were not “covered” vehicles. Of the total of 284 light-duty vehicles acquired in FY 2008, the following were not counted for compliance:

- 120 were in fleets located outside covered metropolitan statistical areas (MSA's)
- 2 were exempt as law enforcement vehicles
- 17 were exempt due to geographic assignment
- 2 were Non-MSA operation (Vehicles)

### NASA's Fleet AFV Acquisitions for FY 2009 and FY 2010

Attachments (B) and (C) provide detailed information on planned and projected vehicle acquisitions for NASA in FY 2009 and FY 2010. In FY 2009, NASA plans to acquire a total of 270 light-duty vehicles of which 129 will be EPAct covered. NASA plans to acquire 229 total AFVs during FY 2009, exceeding the EPAct requirement of 128 AFVs.

## **Special Projects of the NASA Fleet Related to AFV and Infrastructure Acquisitions**

Significant AFV fueling infrastructure projects are currently underway at several NASA Centers. During FY 2007 NASA added one additional E-85 fueling stations. This station will decrease NASA's petroleum consumption and increase our percentage of AFV fuel used.

### **Petroleum Savings**

New petroleum savings baselines were derived from FY 2005 data. By mandate of E.O. 13423, NASA is required to decrease petroleum consumption by 2% annually. Since it is difficult, if not impossible, to project petroleum savings for FY 2009 and FY 2010 based upon the estimated AFV acquisitions, improvements in fuel economy, fleet efficiency, and petroleum savings are reported for only FY 2008 based on actual data provided.

Covered Petroleum Consumption in GGE					
	Baseline FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
<b>Gasoline</b>		770,847	833,580	888,044	
<b>Diesel</b>		301,092	316,588	337,136	
<b>B20</b>		99,859	99,207	30,764	
<b>Total</b>	<b>1,275,831</b>	<b>1,171,798</b>	<b>1,249,375</b>	1,255,944	
<b>Target</b>		1,250,314	1,224,797	1,199,281	1,173,764
<b>Compliant</b>		<b>Yes</b>	<b>No</b>	<b>No</b>	

### **Alternative Fuel Use by NASA in FY 2008**

New alternative fuel use baselines were derived from FY2005 data. By mandate of E.O.13423, NASA is required to increase alternative fuel use by 10% annually.

The majority of vehicles acquired by NASA and other Federal fleets are leased from GSA. These leases include the maintenance and fuel costs for the vehicles. Annual usage for the Agency is determined through the use of a GSA credit card to purchase alternative fuel. However, since product code standards are not uniform among suppliers of alternative fuels (e.g., ethanol or E-85), it is difficult for credit vendors to determine the specific fuel purchased. The exception may be natural gas, which is usually purchased at a local utility refueling site, which allows fleets to contact the utility for an accurate accounting of purchased fuel. Alternative fuel use data is approximated from proportioning GSA data and internal record keeping efforts.

Alternative Fuel Consumption in GGE					
	Baseline FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
CNG		15,760	32,047	14,837	
LNG		0	0	0	
LPG		10,661	10,237	7,263	
E-85		199,227	231,772	234,671	
Electric		0	0	0	
M-85		0	0	0	
B100		29,015	29,323	21,625	
Hydrogen		0	0	0	
<b>Total</b>	<b>148,433</b>	<b>254,663</b>	<b>303,379</b>	<b>278,396</b>	
<b>Target</b>		163,276	179,603	197,564	217,320
<b>Compliant</b>		<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	

\*B100 is calculated at 20% of the reported B20 and 100% of the reported B100 fuel used in the Section III Actual Fuel Cost/Consumption by Fuel Type data input screen.

#### EPAct 2005 Section 701 Waiver Request

National Aeronautics and Space Administration (NASA) requested waivers under EPACT 2005 Section 701 for the following locations:

- Ames Research Center, CA
- Dryden Flight Research Center, CA
- Jet Propulsion Laboratory, CA
- Johnson Space Center, TX
- Marshall Space Flight Center, AL
- NASA Headquarters, DC
- Goddard Space Flight Center, MD
- Langley Research Center, VA

A total of 263 alternative fuel vehicles were placed on waivers due to lack of available fuel at the assigned location of the vehicles. Langley Research and Goddard Space Flight Center lost CNG capability due to a commercial vendor ceasing operation. Most of the vehicles were bi-fuel and continued to be operated using regular gasoline.

Approximately 22 vehicles were dedicated CNG and were transferred to Centers that had CNG infrastructure and fueling capability.

Waiver Criteria was stipulated as:

- Not available
- Not available within 5 miles or 15 minutes
- Exceeds the price of regular petroleum fuel.

## **Summary**

NASA has successfully exceeded the AFV acquisition requirements of EPAct in FY 2008 and projects to repeat this accomplishment in FYs 2009 and 2010. NASA fleets were unable to meet the goal to reduce the agency's annual fleet petroleum consumption FY 2008. Issues for not meeting required mandate for petroleum fuel reduction were:

- Loss of CNG fueling capability.
- Hurricane Fay in the Houston area.
- Leaking E-85 fuel tank at Goddard Space Flight Center, Md.
- Lightning strike on E-85 fuel tank at Kennedy Space Center, Fl.

NASA did exceed its goal of alternative fuel use by 41% over the established FY 2005 baseline.

NASA will continue to implement strategy to comply with the requirements of Executive Order 13423, towards a 2% percent reduction in the fleet's annual petroleum consumption and increase alternative fuel use by 10% annually in FY 2009.